

ABSTRACT OF THE DISCLOSURE

A multiple dielectric device and its method of manufacture overlaying a semiconductor material, comprising a substrate, an opening relative to the substrate, the opening having an aspect ratio greater than about two, a first dielectric layer in the opening, wherein a portion of the opening not filled with the first dielectric layer has an aspect ratio of not greater than about two, and a second dielectric layer over said first dielectric layer. The deposition rates of the first and second dielectric layers may be achieved through changes in process settings, such as temperature, reactor chamber pressure, dopant concentration, flow rate, and a spacing between the shower head and the assembly. The dielectric layer of present invention provides a first layer dielectric having a low deposition rate as a first step, and an efficiently formed second dielectric layer as a second completing step.